UNITED STATES PATENT AND TRADEMARK OFFICE

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10/720,758	11/25/2003	Masahiro Kurosawa	62807-151	3115

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EXAMINER
JARRETT, SCOTT L

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 November 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-17</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>25 November 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>4/20/2004</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

1.   This Non-Final Office Action is in response to Applicant's submission filed

November 25, 2003. Currently Claims 1-17 are pending.

Priority

2.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Claim Objections

3.   Claims 9-17 are objected to because of the following informalities. Appropriate

correction is required.

        Regarding independent Claims 9 and 17, Claims 9 and 17 recite SLO instead of

the intended service level object as intended.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-2, 8-10 and 16-17 are rejected under 35 U.S.C. 102(b) as being

anticipated by Aman et al., U.S. Patent no. 5,603,029.

Regarding Claims 1, 9 and 17 Aman et al. teach a load balancing system and

method comprising:

- registering a business configuration definition of each business service

including a schedule of the business service with a business configuration management

repository (Column 13, Lines 50-68; Column 14, Lines 1-15; Column 15, Lines 45-68;

Figures 4-5);

- storing at least a service level objective of each business service (goal, policy;

Column 7, Lines 37-50; Column 12, Lines 34-64);

- storing information on performance of each information processing module in a

performance management table (Column 14, Lines 10-41; Column 15, Lines 8-44;

Figure 3);

- reading the schedule of a designated business service from the registered

business configuration definition (assignments, requests; Column 12, Lines 25-35;

Column 14, Lines 43-55; Figures 5, 8A, 9A);

- acquiring the stored service level agreement of the designated business

service (Column 7, Lines 37-50; Column 12, Lines 34-64);

- partitioning the schedule of the designated business service into a plurality of

partial schedules according to the service level objective (requests, session placement;

Column 17, Lines 33-37; Column 28, Lines 18-53; Figures 11, 12A, 12B);

- selecting one or more information processing modules who performance

information satisfies the service level objective in each partial schedule (Column 13,

Lines 33-45; Column 28, Lines 18-53; Figure 11); and

- reserving the information processing modules selected satisfying the service

level objective for executing the designated business service in the schedule (Column

13, Lines 33-45; Column 28, Lines 18-53; Column 30, Lines 1-15; Figure 11, 12A, 12B).

Regarding Claims 2 and 10 Aman et al. teach a load balancing system and

method where the partitioning of the schedule is conducted in units of spans where the

service level objective remains constant (Column 17, Lines 33-37; Column 28, Lines 18-

53; Figures 11, 12A, 12B).

Regarding Claims 8 and 18 Aman et al. teach a load balancing system and

method diverting an already-reserved, by another business service, information

processing module to the designated business service when it is impossible to fully

reserve the information processing module for executing the designated business

service (Column 17, Lines 5-30; Column 20, Lines 17-35; Figures 6A-6C).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 3-7 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Aman et al., U.S. Patent no. 5,603,029 as applied to claims 1-2, 8-10 and 16-17

above, and further in view of Stone, U.S. Patent No. 6,823,382.

        Regarding Claims 3 and 11 Aman et al. does not expressly teach omitting a step

in a *start or finish process* as claimed.

        Stone teaches a load balancing system and method where the information

processing reservation is made omitting a step in a start or finish process of the

designated business service that coincides with a step of a business service that has

already been reserved with the information processing module in an analogous art of

load balancing using service level objectives for the purpose of

starting/stopping/restarting failed business services (Column 5, Lines 5-13; Column 6,

Lines 1-16; Column 8, Lines 9-30; Figures 5, 9-10).

        It would have been obvious to one skilled in the art at the time of the invention

that the load balancing system and method as taught by Aman et al. would have

benefited from omitting a step in a start or finish process (step) of a business process in view of the teachings of Stone; the resultant system/method enabling the system to stop, start, restart or replicate already running and/or failed business services in order to achieve service level objectives (Stone: Column 8, Lines 1-24).

Regarding Claims 4 and 12 Aman et al. does not expressly omitting a step in a start/stop process as claimed.

Stone teaches a load balancing system and method wherein the omissions is realized by including flag information indicating contents of the start and finish process of each business service in the previously registered business configuration definition; and comparing the flag of the already reserved business service with the flag of the designated service (Column 7, Lines 37-68; Column 9, 40-55; Figures 9-10) in an analogous art of load balancing for the purpose of maintaining service level objectives by starting, stopping, restarting and/or replicating business service processes.

It would have been obvious to one skilled in the art at the time of the invention that the load balancing system and method as taught by Aman et al. would have benefited from omitting a step in a start or finish process (step) of a business process by flagging contents indicative of the start/stop process in view of the teachings of Stone; the resultant system/method enabling the system to adjust resources (load balance) in order to achieve service level objectives (Stone: Column 8, Lines 1-24).

Regarding Claims 5-7 and 13-15 Aman et al. teach a load balancing system and

method further comprising substituting one process/service for another (Column 20,

Lines 17-35; Figures 6A-6C) and selecting/assigning process/business service such

that it does not impact/effect an already reserved information processing reservation

(does not assign additional request to resources with little/no capacity remaining;

Column 17, Lines 5-30).

Aman et al. does not expressly teach omitting a particular step in a start or finish

process as claimed.

Stone teaches a load balancing system and method wherein the information

processing reservation is made omitting a particular step in a start or finish process if a

step is capable of substituting for the particular step that has not been omitted; if the

omission of the particular step has no effect on the already reserved business service;

or if flag information of the particular step exists in flag information of a start process of

a subsequent already reserved business process (Column 7, Lines 37-56; Column 9,

Lines 33-63; Column 10, Lines 14-33; Figures 7, 9-10).

It would have been obvious to one skilled in the art at the time of the invention

that the load balancing system and method as taught by Aman et al. would have

benefited from omitting a step in a start or finish process (step) of a business process by

flagging contents indicative of the start/stop process in view of the teachings of Stone;

the resultant system/method enabling the system to adjust resources (load balance) in

order to achieve service level objectives (Stone: Column 8, Lines 1-24).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Donaghue, U.S. Patent No. 6,226,377, teach a load balancing system and method comprising balancing business services assignments to information processing resources in order to satisfy service level goals.

- Eilert et al., U.S. Patent no. 6,393,455, teach a load balancing system and method where loads for shared resources are adjusted in order to achieve common performance standards/goals.

- Hall et al., Satisfying QoS with a Learning Based Scheduling Algorithm (1998), teaches a load balancing system and method for scheduling resources in order to satisfy quality of service levels/performance objectives.

- Foster et al., A Distributed Resource Management Architecture that Supports Advance Reservations and Co-Allocations (1999), teaches a load balancing system and method for reserving information processing modules in order to achieve quality of service requirements and wherein the schedule of designated business services is partitioned into a plurality of partial schedules (time slots) according to an service level objective.

- Keller et al., Defining and Monitoring Service Level Agreements for dynamic e-Business (2002) teaches an information processing module scheduling system and method for load balancing resources/modules in order to achieve service level objectives and service level agreements.

- Sahai et al., Automated SLA Monitoring for Web Services (2002), teaches a load balancing system and method for scheduling/reserving information processing modules in order to achieve service level objectives/agreements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT L. JARRETT whose telephone number is (571)272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott L Jarrett/
Primary Examiner, Art Unit 3623